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Relevance scale **1 An object oriented approach to CAD tool control within a design framework**

J. Daniell, S. W. Director

June 1989 **Proceedings of the 26th ACM/IEEE conference on Design automation**Full text available:  [pdf\(808.85 KB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

As VLSI design frameworks evolve, a distributed control mechanism for CAD tools has become a central research issue. In this paper, we present an object oriented tool integration methodology that treats the tools as objects. This approach simplifies CAD tool control within a design framework making the framework more general, easier to use, and more capable of supporting a large population of CAD tools.

**2 FACE core environment: the model and its application in CAE/CAD tool development**

W. D. Smith, D. Duff, M. Dragomirecky, J. Caldwell, M. Hartman, J. Jasica, M. A. d'Abreu

June 1989 **Proceedings of the 26th ACM/IEEE conference on Design automation**Full text available:  [pdf\(820.59 KB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Many aspects of design automation software have similar requirements for representing, manipulating, and storing design information. The recognition of these common requirements in CAD tools, allows the Flexible Architecture Compilation Environment's (FACE) Core Environment to provide a suite of high level tools for the CAD developer. The Core Environment software has been developed using object-oriented software technology, and may be readily adapted to specific applications. The focus of ...

**3 Design tool integration using object-oriented database views**

Elke A. Rundensteiner

November 1993 **Proceedings of the 1993 IEEE/ACM international conference on Computer-aided design**Full text available:  [pdf\(461.55 KB\)](#)Additional Information: [full citation](#), [references](#), [citations](#)**4 Machine interpretation of CAD data for manufacturing applications**

Qiang Ji, Michael M. Marefat

September 1997 **ACM Computing Surveys (CSUR)**, Volume 29 Issue 3Full text available:  [pdf\(1.90 MB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

terms, review

Machine interpretation of the shape of a component for CAD databases is an important problem in CAD/CAM, computer vision, and intelligent manufacturing. It can be used in CAD/CAM for evaluation of designs, in computer vision for machine recognition and machine inspection of objects, and in intelligent manufacturing for automating and integrating the link between design and manufacturing. This topic has been an active area of research since the late '70s, and a significant number of computat ...

**Keywords:** artificial intelligence, automated process planning, computer-aided design, computer-integrated manufacturing, feature recognition, flexible automation

**5 An enhanced flow model for constraint handling in hierarchical multi-view design environments** 

Pieter van der Wolf, Olav ten Bosch, Alfred van der Hoeven

November 1994 **Proceedings of the 1994 IEEE/ACM international conference on Computer-aided design**

Full text available:  pdf(958.27 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In this paper we present an enhanced design flow model that increases the capabilities of a CAD framework to support design activities on hierarchical multi-view design descriptions. This flow model offers new constructs for the configuration of complex design constraints in terms of conditions on the hierarchical multi-view structure of a design. The design flow management system enforces these constraints and uses them to inform the designer more effectively about the validity of verifica ...

**6 Designers and their machines: CAD use and support in the US and Japan** 

Jeffrey K. Liker, Mitchell Fleischer, Mitsuo Nagamachi, Michael S. Zonneville

February 1992 **Communications of the ACM**, Volume 35 Issue 2

Full text available:  pdf(15.85 MB) Additional Information: [full citation](#), [references](#), [index terms](#)

**Keywords:** cross-national research on computer use, management of computing, user assessments, user support

**7 Geometric modeling and meshes: Feature preservation in view-dependent multiresolution meshes** 

Markus Grabner

April 2002 **Proceedings of the 18th spring conference on Computer graphics**

Full text available:  pdf(1.11 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Normal vector discontinuities on surfaces provide important visual cues for understanding the image of a geometrical object since they often indicate feature boundaries. We present an algorithm that preserves the appearance of features in view-dependent multiresolution meshes. The algorithm is shown to be efficient in terms of time and memory consumption. Our method is compatible with geomorphing to eliminate popping artefacts in interactive applications, and it can also be applied to texture co ...

**Keywords:** CAD, features, multiresolution, view-dependent simplification

**8 A CODASYL CAD data base system** 

Günther Zintl

**June 1981 Proceedings of the 18th conference on Design automation**

Full text available:  pdf(427.89 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

If in CAD systems a CODASYL data base system is used, one has to avoid some well known disadvantages. To achieve this, we defined for CAD needs in application programs a special high level data manipulation language (HLDML). With this concept the application programs get independent from the data base structure and they are able to work with a "many records at a time"- view. Other provisions reduced some overhead caused by the used data base system.

**9 Highlights of CMU research on CAD, CAM and CAT of VLSI circuits** 

John Paul Shen

November 1999 **Proceedings of 1986 ACM Fall joint computer conference**

Full text available:  pdf(1.35 MB) Additional Information: [full citation](#), [references](#), [index terms](#)

**10 VLSI CAD tool integration using the Ulysses environment** 

Michael L. Bushnell, S. W. Director

July 1986 **Proceedings of the 23rd ACM/IEEE conference on Design automation**

Full text available:  pdf(871.45 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Ulysses is a VLSI CAD environment which effectively addresses the problems associated with CAD tool integration. Specifically, Ulysses allows the integration of CAD tools into a design automation system, the codification of a design methodology, and the representation of a design space. Ulysses keeps track of the progress of a design and allows exploration of the design space. The environment employs artificial intelligence techniques, functions as an inter ...

**11 View planning for automated three-dimensional object reconstruction and inspection** 

William R. Scott, Gerhard Roth, Jean-François Rivest

March 2003 **ACM Computing Surveys (CSUR)**, Volume 35 Issue 1

Full text available:  pdf(517.25 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Laser scanning range sensors are widely used for high-precision, high-density three-dimensional (3D) reconstruction and inspection of the surface of physical objects. The process typically involves planning a set of views, physically altering the relative object-sensor pose, taking scans, registering the acquired geometric data in a common coordinate frame of reference, and finally integrating range images into a nonredundant model. Efficiencies could be achieved by automating or semiautomating ...

**Keywords:** View planning, object inspection, object reconstruction, range images

**12 Toward CAM-oriented CAD** 

Farhad Arbab, Larry Lichten, Michel A. Melkanoff

January 1982 **Proceedings of the 19th conference on Design automation**

Full text available:  pdf(601.81 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

A new solid modeling scheme is proposed and developed as the core of an integrated approach to the computer aided design and manufacture of mechanical parts. The benefits of this methodology, which considers the manufacturing process during the design phase, are discussed in the context of an integrated CAD/CAM system.

**13 The user's view of CAD/CAM (Panel Session)**

Ken Anderson, Myrl Thompson, D. H. W. Harris, R. Wilson, B. Crowley, C. Boyd, M. Wozny

July 1980 **ACM SIGGRAPH Computer Graphics , Proceedings of the 7th annual conference on Computer graphics and interactive techniques**, Volume 14 Issue 3

Full text available:  pdf(26.46 KB) Additional Information: [full citation](#), [abstract](#), [index terms](#)

"The User's View of CAD/CAM" will share the experience gained in over 50 man-years of day-to-day use of CAD/CAM systems. Six industry segments are represented in this presentation. In addition, a wide range of systems costing under \$50,000 to over \$1,000,000 will be discussed. There is good news and bad news. All panelists admit to improved productivity and/or reduced design cycle time, but all is not free. You will hear about what it takes to operate an ...

**14 Tools for view generation in object-oriented databases**

Elke A. Rundensteiner

December 1993 **Proceedings of the second international conference on Information and knowledge management**

Full text available:  pdf(1.06 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**15 A framework to support an object-oriented view of existing engineering databases**

Rafiqul Ahad

January 1988 **Proceedings of the 1988 ACM SIGSMALL/PC symposium on ACTES**

Full text available:  pdf(1.07 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper presents a framework for an Object Management System (OMS) to support an object-oriented view of an existing engineering database. OMS is intended to run on a workstation to access the engineering database on another machine (host). OMS has three components: a Data Model (DM) to define the objects and the relationships among the objects that exist in the host database, a Transformation Model (TM) to define the modeling concepts that are not directly supported in the DM, and a Map ...

**16 CHESHIRE: an object-oriented integration of VLSI CAD tools**

L.-P. Demers, P. Jacques, S. Fauvel, E. Cerny

October 1987 **Proceedings of the 24th ACM/IEEE conference on Design automation**

Full text available:  pdf(807.72 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We present an approach to the integration of VLSI CAD tools through the uniformization of interactions with design cells at both the user and the program levels. The integration model is based on the concept of objects applied to circuit cells. User interactions are achieved through a desk-top-like graphics interface. Regrouping of related or equivalent cell-objects into tissues represented by a generic cell helps with their management. Late binding of specific version cells then encourages ...

**17 Efficient projection orders for CAD**

Andreas Dolzmann, Andreas Seidl, Thomas Sturm

July 2004 **Proceedings of the 2004 international symposium on Symbolic and algebraic computation**

Full text available:  pdf(258.35 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We introduce an efficient algorithm for determining a suitable projection order for performing cylindrical algebraic decomposition. Our algorithm is motivated by a statistical analysis of comprehensive test set computations. This analysis introduces several measures on both the projection sets and the entire computation, which turn out to be highly correlated. The statistical data also shows that the orders generated by our algorithm are significantly close to optimal.

**Keywords:** partial cad, projection operator, redlog

**18 Neptune: a hypertext system for CAD applications**

Norman Delisle, Mayer Schwartz

June 1986 **ACM SIGMOD Record , Proceedings of the 1986 ACM SIGMOD international conference on Management of data**, Volume 15 Issue 2

Full text available:  pdf(1.25 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Even though many of the essential notions of hypertext were first contained in the description of a "memex," written by Vannevar Bush in 1945 [Bus45], there are today only a few scattered implementations of hypertext, let alone any serious use of it in a CAD environment. In what follows, we describe what hypertext is all about. We describe a prototype hypertext system, named Neptune, that we have built. We show how it is useful, especially its broad applicability to CAD.

**19 Design process management for CAD frameworks**

M. F. Jacome, S. W. Director

July 1992 **Proceedings of the 29th ACM/IEEE conference on Design automation**

Full text available:  pdf(816.20 KB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**20 Model-based object recognition in dense-range images—a review**

Farshid Arman, J. K. Aggarwal

March 1993 **ACM Computing Surveys (CSUR)**, Volume 25 Issue 1

Full text available:  pdf(3.42 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

The goal in computer vision systems is to analyze data collected from the environment and derive an interpretation to complete a specified task. Vision system tasks may be divided into data acquisition, low-level processing, representation, model construction, and matching subtasks. This paper presents a comprehensive survey of model-based vision systems using dense-range images. A comprehensive survey of the recent publications in each subtask pertaining to dense-range image object recogni ...

**Keywords:** 3D object recognition, 3D representations, CAD-based vision, dense-range images, image understanding

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#### 1 Design tool integration using object-oriented database views

*Rundensteiner, E.A.;*

Computer-Aided Design, 1993. ICCAD-93. Digest of Technical Papers., 1993 IEEE/ACM International Conference on , 7-11 Nov. 1993

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[Abstract]   [PDF Full-Text (404 KB)]   IEEE CNF

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*Xuejun Sun; Wei Qian; Dansheng Song; Robert, A.C.;*

Mathematical Methods in Biomedical Image Analysis, 2001. MMBIA 2001. IEEE Workshop on , 9-10 Dec. 2001

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[Abstract]   [PDF Full-Text (948 KB)]   IEEE CNF

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[Abstract] [PDF Full-Text (1824 KB)] IEEE JNL

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*de Martino, T.;*

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[Abstract] [PDF Full-Text (1256 KB)] IEEE CNF

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*Zhang, S.; Sullivan, G.D.; Baker, K.D.;*

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*Tory, M.;*

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*Eggert, D.W.; Fitzgibbon, A.W.; Fisher, R.B.;*

Pattern Recognition, 1996., Proceedings of the 13th International Conference on , Volume: 1 , 25-29 Aug. 1996

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**12 Mechanical design of alarm system for vehicles**

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**15 A complete system for recovery of 3D shapes from engineering drawings**

*Devaux, P.M.; Lysak, D.B., Jr.; Chan Pyng Lai; Kasturi, R.;*

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